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ABSTRACT

This report compares Massachusetts's reading and mathematics performance on the most recent administrations of the state assessment with performance on the National Assessment of Educational Progress (NAEP). To indicate how Massachusetts is doing in narrowing the academic achievement gap between African American, Latino, or low-income students and their white, middle class peers, the report presents NAEP data by race, ethnicity, and family income. The report presents other state-level data on K-college education, including demographic distribution across each educational level, participation and success in Advanced Placement, percentage of students taking high-level courses, school funding gaps, and high school and college graduation rates. Data from the 2002 state assessment show that 54 percent of all 4th graders were proficient or above in English/Language Arts, with significantly more white than Latino 4th graders performing at this level. On the 1998 NAEP 4th grade reading assessment, 37 percent of Massachusetts students performed at or above the proficient level. The 2002 state assessment data show that 34 percent of all 8th graders were proficient or above in mathematics, with white students far outperforming Latino students. 2000 NAEP mathematics assessment results show that 32 percent of 8th graders were at or above the proficient level. Massachusetts' Latino-white 4th grade reading achievement gap and 8th grade mathematics gap fell 25th and 22nd among the states in 1998 and 2000, respectively. African Americans and Latinos are underrepresented in Advanced Placement (AP) exam taking, while Asian American students take AP exams in extremely high numbers. About 54 percent of Massachusetts' high school students enroll in college, equal to

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the national rate. One in five Massachusetts secondary classes are taught by teachers lacking a major or minor in the field. African Americans and Latinos are somewhat overrepresented in special education and underrepresented in gifted education. Districts with higher child poverty rates and higher minority enrollments have the most state and local dollars to spend per student. (SM)

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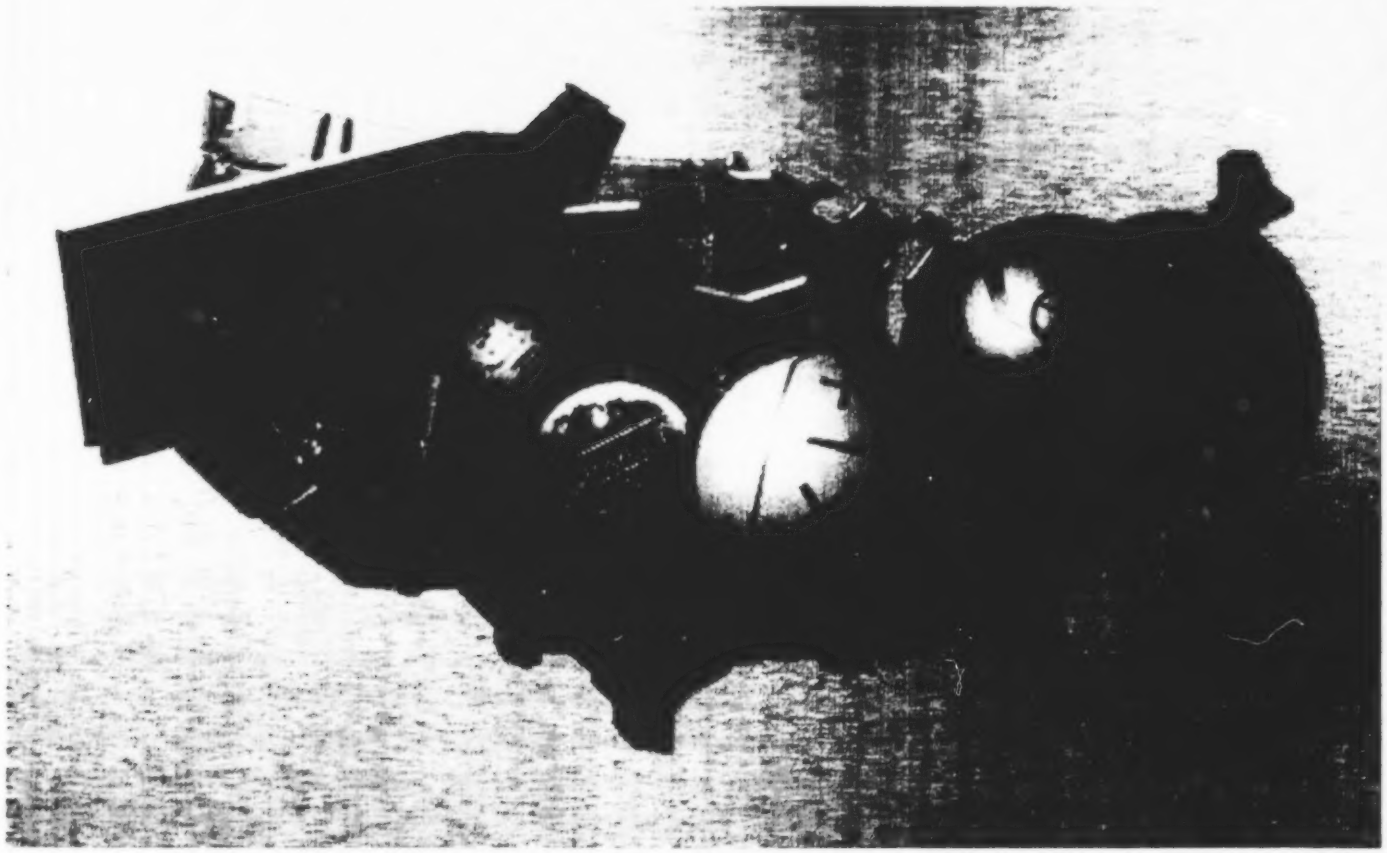
Education Watch

MASSACHUSETTS

Key Education Facts and Figures

Achievement, Attainment and Opportunity



From Elementary School through College

Prepared by the Education Trust, Inc.

Winter 2002-2003

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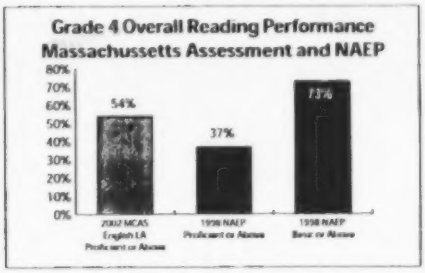
Achievement

Massachusetts Elementary Reading Achievement

Perhaps the most important task of elementary schools is to teach students to read well. Strong reading skills are the key to later success, both in school and in life.

The following charts compare your state's reading performance on the most recent administrations of the state assessment and the National Assessment of Educational Progress (NAEP). Under the No Child Left Behind (NCLB) legislation, every state must have a plan in place to ensure that all students are meeting the state's standard of proficiency by 2013-14. Results are reported below as the proportion of students reading at the "proficient" level, or the state-defined equivalent.

Are Massachusetts students proficient in reading?

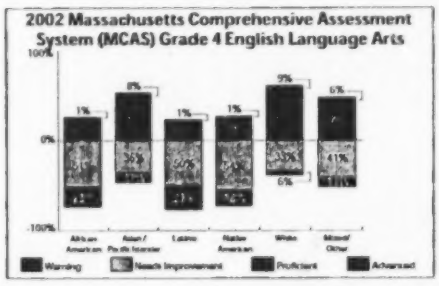


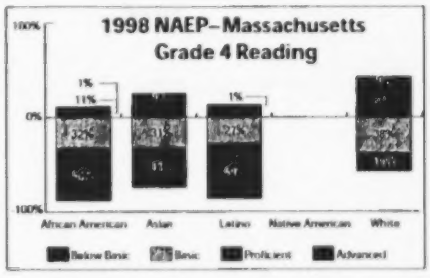
Results from the 2002 Massachusetts Comprehensive Assessment System (MCAS) show that 54% of all 4th graders in Massachusetts are proficient or above in English / Language Arts.

On the 1998 National Assessment of Educational Progress (NAEP), 73% of Massachusetts 4th graders performed at the basic level or above in reading, while only 37% performed at proficient or above.

Do results vary by group?

Because it's important to look underneath overall averages to see how different groups of students are performing, NCLB further requires states to report achievement data by group. In this way, states can draw attention to the students who need the most help. The charts below show the distance each group has to go in order to reach the proficient level on the state assessment and on NAEP.





On Massachusetts' English / Language Arts test, 61% of White 4th graders are proficient or above, compared to 23% of Latino 4th graders. On the other end of the spectrum, 27% of Latino 4th graders have scores indicating "warning" status, compared to 6% of White 4th graders.

Is Massachusetts' performance improving on NAEP?

Grade 4 Reading

	NAEP Scale Score		Change from 1992-1998	
	1992	1998	State Change	Biggest Gainer
African American	205	202	-3	+10 (RI)
Latino	201	200	-1	+12 (CT)
White	231	231	0	+10 (CT)
All	226	225	-1	+10 (CT)

Note: A difference of 10 points is roughly equivalent to a year's worth of learning

Between 1992 and 1998, Massachusetts scores on the NAEP 4th grade reading assessment decreased by 1 point. The biggest state gain over that period was 10 points. From 1992-1998, the gap in Massachusetts between White and Latino students on the NAEP 4th grade reading assessment widened by 1 point.

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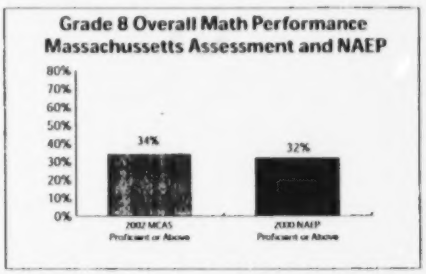
Achievement

Massachusetts Middle Grade Mathematics Achievement

To survive in our information society, all Americans need a solid foundation in mathematics. Middle schools play a particularly central role in assuring that students have not only mastered basic computation, but are also developing the mathematical thinking and problem-solving skills so important in the mathematics courses they will take in high school.

As we showed with reading on the previous page, the following charts compare students' mathematics performance on the most recent administrations of the state assessment and the National Assessment of Educational Progress (NAEP). NCLB legislation requires every state to have a plan in place to ensure that all students are meeting the state's standard of proficiency by 2013-14. For this reason, results are reported as the proportion of students at the "proficient" level, or the state-defined equivalent.

Are Massachusetts students proficient in mathematics?

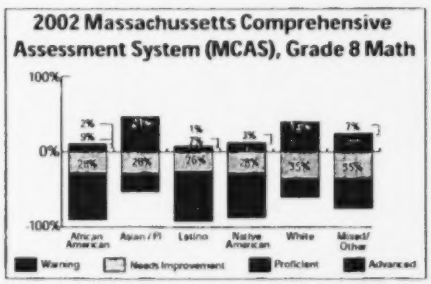


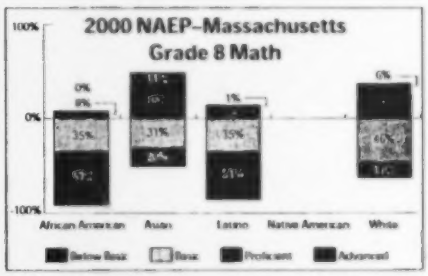
Results from the 2002 Massachusetts Comprehensive Assessment System (MCAS) show that 34% of all 8th graders in Massachusetts are proficient or above in mathematics.

On the 2000 National Assessment of Educational Progress (NAEP), 32% of Massachusetts 8th graders performed at proficient or above.

Do results vary by group?

Because it's important to look underneath overall averages to see how different groups of students are performing, NCLB further requires states to report achievement data by group. In this way, states can draw attention to the students who need the most help. The charts below show the distance each group has to go in order to reach the proficient level on the state assessment and on NAEP.





On Massachusetts' mathematics test, 40% of White 8th graders are proficient or above, compared to 8% of Latino 8th graders. On the other end of the spectrum, 66% of Latino 8th graders have scores indicating "warning" status, compared to 26% of White 8th graders.

Is Massachusetts' performance improving on NAEP?

Grade 8 Mathematics

	NAEP Scale Score		Change from 1990-2000	
	1990	2000	State Change	Biggest Gainer
African American	244	254	+10	+23 (NC)
Latino	241	259	+18	+51 (NC)
White	278	289	+11	+29 (NC)
All	273	283	+10	+30 (NC)

Note: A difference of 10 points is roughly equivalent to a year's worth of learning

Between 1990 and 2000, Massachusetts scores on the NAEP 8th grade mathematics assessment increased by 10 points. The biggest state gain over that period was 30 points. From 1990 to 2000, the gap in Massachusetts between White and Latino students on the NAEP 8th grade mathematics assessment narrowed by 7 points.

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Achievement

How Does Massachusetts' Achievement Compare?

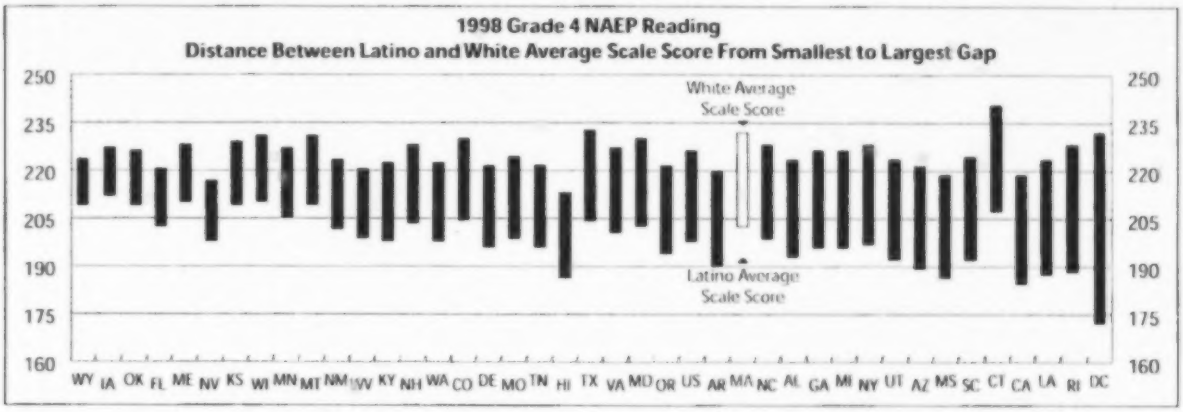
The win-win pattern states want to see is rising student achievement combined with narrowing gaps between student groups. On these pages we show where states are in meeting this twofold goal with respect to either African American, Latino or low-income students. For this report, we chose to feature the largest minority group in your state. While we focus here on one group's story, a complete picture of how your state is doing with all students can be found on Ed Watch Online at www.edtrust.org.

Readers should note that progress on one part of the goal does not necessarily mean progress on the other. For example, a state can have a narrow achievement gap between White and minority students, but the achievement levels of both groups are low. Likewise, minority achievement can be high relative to other states, but low in relation to White achievement in their own state, leaving a large gap. Most encouraging are the states that are seeing progress on both fronts.

NAEP Grade 4 Reading

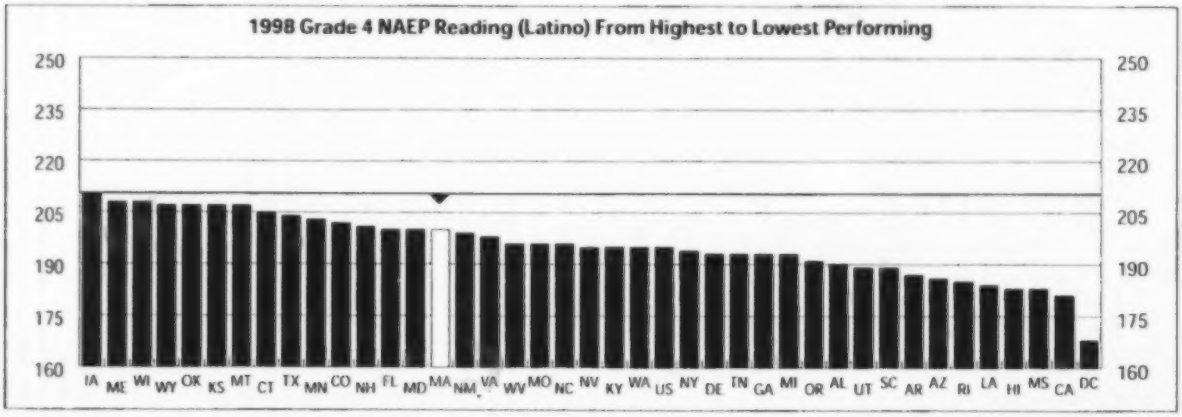
How does Massachusetts' Latino-White achievement gap compare?

The chart below shows the reading achievement gap between your state's Latino and White fourth-graders on NAEP. The top of each bar represents the average scale score for White students and the bottom is that for Latino students. States are ordered from the narrowest to the widest gap.


1998 Grade 4 NAEP Reading
Distance Between Latino and White Average Scale Score From Smallest to Largest Gap
250
235
220
205
190
175
160
White Average Scale Score
Latino Average Scale Score
WY IA OK FL ME NV KS WI MN MT NM WV KY NH WA CO DE MO TN HI TX VA MD OR US AR MA NC AL GA MI NY UT AZ MS SC CT CA LA RI DC

How do Latino scores in Massachusetts compare?

Some states are far more successful teaching minority and low-income students than others. Indeed the achievement gap between students of the same group in high- and low-performing states is often larger than the gap between White and minority students within states. The following chart shows the average scale scores of Latino fourth-graders in all states that participate in NAEP.


1998 Grade 4 NAEP Reading (Latino) From Highest to Lowest Performing
250
235
220
205
190
175
160
IA ME WI WY OK KS MT CT TX MN CO NH FL MD MA NM VA WV MO NC NV KY WA US NY DE TN GA MI OR AL UT SC AR AZ RI LA HI MS CA DC

Note: A difference of 10 points is roughly equivalent to one year's worth of learning.

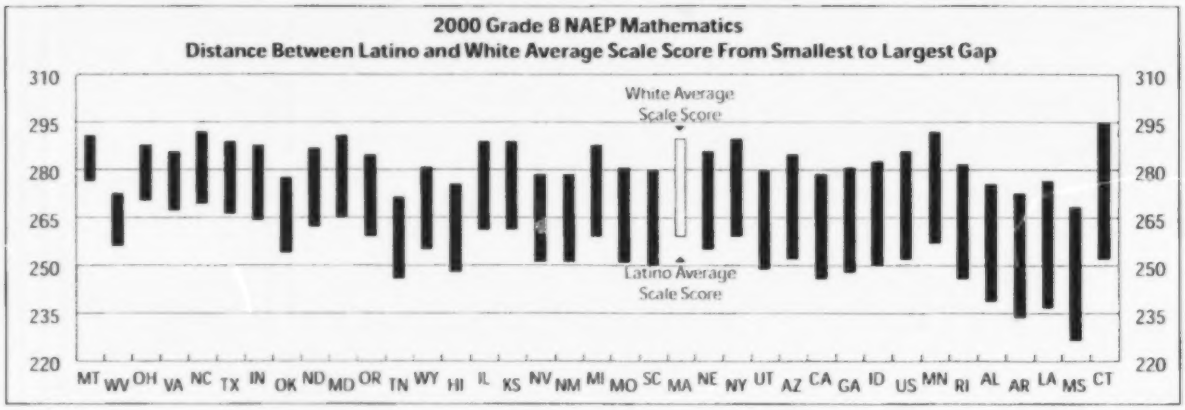
Massachusetts'—along with AR and NC's—Latino-White achievement gap falls 25th among states on the 1998 NAEP grade 4 reading assessment. Latino 4th graders in Massachusetts perform in the middle of the pack among states in NAEP reading assessment.

How Does Massachusetts' Achievement Compare?

NAEP Grade 8 Mathematics

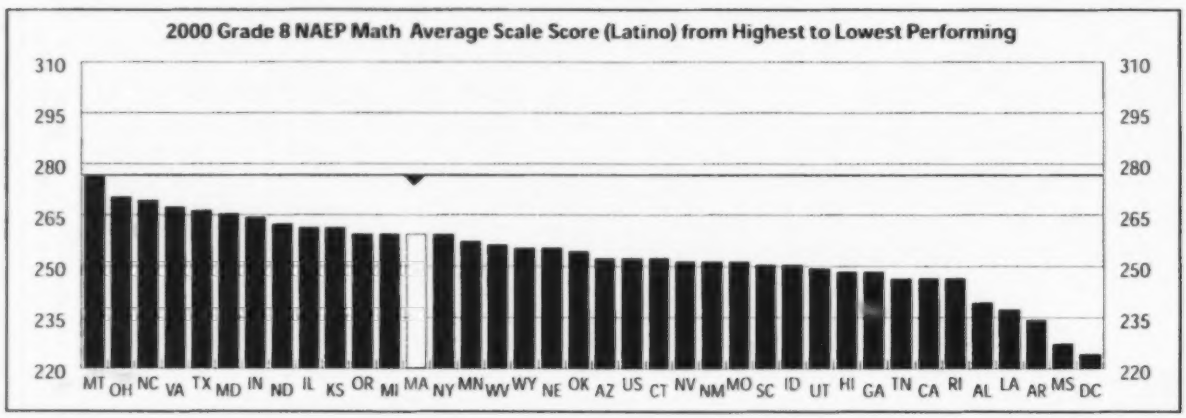
How does Massachusetts' Latino-White achievement gap compare?

As with reading, the chart below shows the mathematics achievement gap between your state's Latino and White eighth-graders on NAEP. The top of each bar represents the average scale score for White students and the bottom is that for Latino students. States are ordered from the narrowest to the widest gap.


2000 Grade 8 NAEP Mathematics
Distance Between Latino and White Average Scale Score From Smallest to Largest Gap
White Average Scale Score
Latino Average Scale Score
310
295
280
265
250
235
220
MT WV OH VA NC TX IN OK ND MD OR TN WY HI IL KS NV NM MI MO SC MA NE NY UT AZ CA GA ID US MN RI AL AR LA MS CT

How do Latino scores in Massachusetts compare?

Some states are far more successful teaching minority and low-income students than others. Indeed the achievement gap between students of the same group in high- and low-performing states is often larger than the gap between White and minority students within states. The following chart shows the average scale scores of Latino eighth-graders in all states that participate in NAEP.


2000 Grade 8 NAEP Math Average Scale Score (Latino) from Highest to Lowest Performing
310
295
280
265
250
235
220
MT OH NC VA TX MD IN ND IL KS OR MI MA NY MN WV WY NE OK AZ US CT NV NM MO SC ID UT HI GA TN CA RI AL LA AR MS DC

Note: A difference of 10 points is roughly equivalent to one year's worth of learning.

Massachusetts'—along with NE, NY and UT's—Latino-White achievement gap falls 22nd among states on the 2000 NAEP grade 8 math assessment. Latino 8th graders in Massachusetts perform in the top third among states in NAEP math.

Attainment

High School and College Success

In earlier times, young people with poor reading and math skills could still succeed if they were willing to work hard. Now they need more. Not only do young people need to graduate from high school, but most will also need at least some postsecondary education or training.

Massachusetts' Student Demographics, 1998-99

Population and enrollments: These data offer a picture of the student population in your state. Comparing the demographic distribution of students across each educational level shows what happens to children as they journey through the education system. Significant differences should raise questions about equity.

	Population, age 5-24	Public K-12	Two Year Colleges	Four Year Colleges
African American	7%	9%	9%	5%
Asian	5%	4%	4%	6%
Latino	9%	10%	8%	4%
Native American	<0.5%	<0.5%	<0.5%	<0.5%
White	78%	77%	66%	62%
Other	—	—	14%	24%
Total	100%	100%	100%	100%
Number	1,589,046	962,317	84,749	336,393

Participation and Success in Advanced Placement, 2000–2001

Composition of AP test takers: Students take Advanced Placement (AP) exams after completing year-long AP courses, typically among the highest level offered in high schools. In a system where all students have equal access to these opportunities, the percentage of test-takers by race and ethnicity would be proportional to their representation in public K-12 enrollment.

Who Takes AP Tests?

Example: Of all AP test-takers, this proportion were African Americans

	Public K-12 Enrollment	Calculus AB	English Language and Composition	Biology
African American	9%	1%	6%	3%
Asian	4%	12%	7%	11%
Latino	11%	2%	3%	2%
White	76%	85%	85%	84%
Total	100%	100%	100%	100%
Number	972,439	2,879	1,461	2,100

Success rates of AP test takers: A school system's responsibility does not end at enrolling students in AP courses. While AP test taking offers a picture of access to AP coursework, relative achievement on these exams is an important measure of student/teacher preparedness. Huge variability in the proportion of test takers that earn a 3 or greater should raise questions about the quality of instruction or educational resources provided in courses labeled Advanced Placement.

Who Scores a 3, 4 or 5?

Example: Of all African Americans who took the AP Calculus exam, this percent scored a 3, 4 or 5.

	Calculus AB	English Language and Composition	Biology
African American	38%	20%	33%
Asian	71%	63%	67%
Latino	67%	26%	55%
White	73%	73%	66%
Total	72%	68%	65%

*data are not reported where there were less than 25 test takers in the state

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Attainment

High School and College Success

Who Makes it Through High School?

Massachusetts' 8th Graders vs. Diplomas

8th graders= 1995-96; diplomas= 2000

	Grade 8	Diploma
African American	5,063	4,030
Asian	2,524	2,322
Latino	6,073	3,505
Native American	214	111
White	51,850	42,982
Total	65,724	52,950

In order to determine equity in attainment rates, we compare regular diploma recipients with the number of 8th graders four years earlier. These show the flow of groups of students from middle school to high school graduation. Although these data do not track individual students from year to year, they should paint a fairly representative picture of who makes it through high school.

Who Makes It Through College?

Good jobs for young people today increasingly require at least some postsecondary training with the greatest advantage going to those with a B.A. or better. Over the last decade, college-going rates have gone up across the country. Below we offer several indicators of postsecondary trends in your state compared to the performance of the top states on each indicator.

Participation and Persistence in Postsecondary

	Massachussetts	Top States*
H.S. freshmen enrolling in any U.S. college w/in 4 years	54%	54%
1st year community college students returning their 2nd year	58%	63%
Freshmen at 4 year returning their sophomore year	84%	83%
First-time full-time freshmen completing a BA w/in 6 years	63%	61%

*Top States= median of top 5 performing states (Measuring Up 2002).

In order to determine equity in attainment rates, we've compared freshmen enrollments to bachelor's degrees four years later. We've also provided official data on the six-year graduation rates for students in your state's premier public university. Taken together, these should paint a fairly representative picture of who makes it through college.

6-Year Graduation Rates at State Flagship Campus, 2001

(1995-96 First-time, full-time freshmen)

	University of Massachusetts-Amherst
African American	53%
Asian	58%
Latino	51%
Native American	71%
White	60%
All	59%

Massachusetts Freshmen vs. Degrees Awarded

*First-time full-time and part-time freshmen

Freshmen= 1996-97; Degrees= 2000

	Freshmen	Bachelors
African American	4,077	1,893
Asian	4,188	3,081
Latino	3,451	1,682
White	43,540	29,568
Other	7,548	6,084
Total	62,804	42,308

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Opportunity

Opportunity Gaps

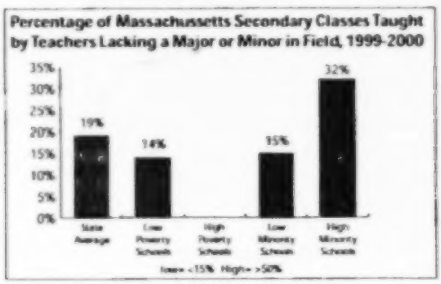
Differences in achievement and attainment between groups of students often have roots in differences in the availability of educational resources. To begin to understand achievement gaps among their students, states and districts should look at the distribution of qualified teachers, challenging curricula as well as funds.

Teacher Gaps

Who Teaches Whom?

Research is very clear: good teachers make good schools. Students who get several effective teachers in a row will soar no matter what their family backgrounds, while students who have even two ineffective teachers in a row rarely recover. The below chart shows one measure of the distribution of teacher talent in your state.

Under NCLB, every state and school district must make sure that low-income students receive their fair share of qualified and experienced teachers. Readers should investigate their state's plan for placing a highly qualified teacher in every classroom.



According to national survey data, nearly 1 in 5 of Massachusett's secondary classes are taught by teachers lacking either a major or minor in the field. Nationally students in high poverty, high minority schools continue to receive less than their fair share of teacher talent.

Challenging Curricula

Industry has joined colleges in the demand for individuals with high-level knowledge and skills. This means that all students need a rigorous curriculum in order to be prepared for success, whether they choose college or work. Yet too few students have the opportunity to gain these skills through rigorous math and science courses.

High Level Course-Taking, 1999-2000

Percentage of students who take high-level courses

Course-taking is an indicator of the amount of access students have to challenging subject matter and the essential skills it develops for life after high school. States should examine differences in access for different student groups.

	Massachussetts	Top States*
8th graders taking Algebra	30%	30%
9th-12th graders taking at least 1 upper-level math course	56%	57%
9th-12th graders taking at least 1 upper-level science course	39%	39%

*Top States= median of top 5 performing states (Measuring Up 2002)

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Special student placements, 2000

School programs vary a great deal in their level of curriculum, expectations, and instruction. If there is equity in placements, the number of Latino students, for example, placed in gifted and talented programs and in special education should be proportional to Latinos enrolled in K-12. Although suspensions are not precisely an academic program, we include data about them because too often they represent a placement out of the system altogether.

Example for reading this chart: Of all public K-12 enrollments in your state, this proportion were African Americans.

	% Public K-12 Enrollment	% Gifted And Talented	% Special Education	% Suspensions
African American	9%	7%	12%	13%
Asian	4%	8%	1%	3%
Latino	11%	6%	13%	18%
Native American	<0.5%	<0.5%	<0.5%	<0.5%
White	76%	78%	74%	66%
Total	100%	100%	100%	100%
Number	975,150	11,263	112,927	51,662

Investments

Funding Gaps: Education Dollars by District Poverty and Minority Enrollment, 1999-2000

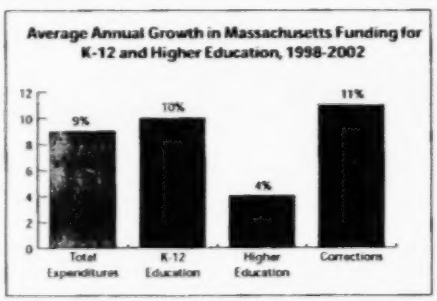
Most states spend considerably fewer state and local resources on the education of poor children than they do on educating more affluent children. The analyses below show the difference between resources available to the quarter of districts in the state with the most poor children and the quarter of districts with the fewest poor children.

In Massachusetts, districts with the highest child poverty rates have $530.40 more state and local dollars to spend per student compared with the lowest-poverty districts.

Districts with the highest minority enrollments have $1,001.29 more state and local dollars to spend per student compared with the lowest-minority districts.

State Funding for K-12 and Higher Education

It is important to examine changes in state education spending in the context of the overall budget as well as expenditures in other areas.



College Affordability Gaps, 2001

College costs often discourage students with limited means from seeking further education. States can lessen this problem by targeting their aid dollars to low-income students and by providing affordable colleges within the reach of low-income families.

	Massachussetts	Top States*
Amount state provides to low-income students for every $1 of federal Pell grants	$0.90	$1.08
Share of income that poorest families need to pay for tuition at lowest priced colleges	16%	8%

*Top States= median of top 5 performing states (Measuring Up 2002)

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References

State assessment results were collected from state education department websites.

High Level Course-taking, Participation and Persistence, and Affordability data: Measuring Up 2002: The State-By-State Report Card for Higher Education. The National Center for Public Policy and Higher Education (2002). Measuring Up defines "Top States" as the median value of the top five performing states. http://measuringup.highereducation.org/2002/reporthome.htm

NCAA 6 yr graduation rates: www.ncaa.org

All remaining indicators contain data from The Education Watch Interactive State & National Data Site: www.edtrust.org

Full definitions and sources for all indicators on Education Watch Online can be found at: http://204.176.179.36/dc/edtrust/navfiles/databookdef2.html

NAEP notes:

- NAEP data were not reported for race/ethnic groups where sample size is too small for reliable estimate.
- State change reported pages 2 and 3 may not be statistically significant.
- NAEP cross-state tables (pages 4 and 5) are presented for either African Americans or Latinos, whichever is a greater proportion of 2000-2001 public K-12 enrollment. Where neither African American nor Latino students comprise at least 3% of the public K-12 enrollment in a state, we presented data for low-income students.

Cross-state table note (p. 4 & 5): For both the gap and minority achievement charts, states that share the same gap size or scale score are ordered alphabetically and share the same rank order in the text analysis. The nation is not included in cross state rank order.

Public K-12 enrollment note: These data may vary across different tables because we used data from consistent years within each table to provide the most accurate context.

Advanced Placement (AP) note: The number of non-respondents and Native Americans was subtracted from the total test-takers and public K-12 enrollment so the reported/known percentages would equal 100%. AP results for Native Americans are not reported as a separate category because we did not deem the data reliable.

Teacher gap data refer to secondary classes in the core subjects.

Rounding note: Due to rounding, the data where we present distributional percentages may not total to 100. We have indicated <0.5% where data would have rounded to zero.

Average annual growth in state funding per National Association of State Budget Officers (NASBO) data.

Education Watch Interactive State and National Data Site

Much of the data in this report—and many additional education indicators—is available on EdWatch Online—our interactive State and National Data Site, which allows users to compare student achievement and opportunity data across states and for the nation. To access the site, go to our website at www.edtrust.org.

Dispelling the Myth Online

While these reports focus on state-level data, Dispelling the Myth Online—another of our online data tools—allows users to mine school-level achievement data in almost every state. This easy-to-use, fully interactive Web site allows you to use school demographic and performance criteria of your choice to conduct rapid searches for high-performing or high-improving schools in nearly every state in the nation for all subjects and grade-levels where state assessment data is available in that state.

To access the full collection of Dispelling the Myth analyses, tools, and documentation, go to our website at www.edtrust.org.

The Education Trust was created to promote high academic achievement for all students at all levels, kindergarten through college. While we know that all institutions could better serve their students, our work focuses on the schools and colleges most often left behind in efforts to improve education: those serving Latino, African American, Native American and low-income students.

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